Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1-30. (Canceled).

31. (New) An exposure method in which an exposure processing of a specific process is performed to each of a plurality of photosensitive objects, said method comprising:

a first process in which estimate values of positional information used to align each of a plurality of divided areas on a photosensitive object with a predetermined point are calculated by a statistical computation, using actual measurement values of positional information of a plurality of specific divided areas selected from said plurality of divided areas on said photosensitive object; and

a second process in which

with respect to a plurality of measurement divided areas on said photosensitive object including at least said plurality of specific divided areas, a non-linear component of positional deviation amount from an individual fiducial position of each of said plurality of measurement divided areas is calculated respectively at predetermined intervals, based on an actual measurement value of positional information of each of said plurality of measurement divided areas and on each of said estimate values, and

judgment is made about the necessity of update of correction information based on magnitude of one of said non-linear component of positional deviation amount calculated of each of said plurality of measurement divided areas and a variation amount of the non-linear component, said correction information being used to correct a non-linear component of

positional deviation amount from an individual fiducial position of each of said plurality of divided areas on said photosensitive object.

32. (New) The exposure method of Claim 31, further comprising:

a third process in which an update processing to update said correction information is performed when it is judged that update is necessary in said second process; and

a fourth process in which exposure is performed controlling a position of said photosensitive object based on the estimate value of positional information of each of said plurality of divided areas and said correction information that is latest.

33. (New) The exposure method of Claim 32 wherein

in said third process, when the update processing of said correction information is performed, among said plurality of divided areas, at least a part of remaining divided areas excluding said plurality of measurement divided areas are to be new measurement divided areas, and said correction information is updated using a non-linear component of positional deviation amount from said individual fiducial position of each of said plurality of divided areas calculated based on actual measurement values of positional information of all measurement divided areas including the new measurement divided areas and on said estimate values.

34. (New) The exposure method of Claim 33 wherein

said new measurement divided areas are determined based on evaluation results of said non-linear component of positional deviation amount of each of said plurality of divided areas included in said correction information before update.

35. (New) The exposure method of Claim 33 wherein

said new measurement divided areas are determined based on evaluation results of

one of said non-linear component of positional deviation amount of each of said plurality of

measurement divided areas calculated in said second process and a variation amount of the

non-linear component.

36. (New) The exposure method of Claim 31 wherein

said intervals are one of intervals of a predetermined number of said photosensitive

objects and intervals of a predetermined period of time.

37. (New) The exposure method of Claim 31 wherein

as said plurality of measurement divided areas on said photosensitive object, only said

plurality of specific divided areas can be designated.

38. (New) The exposure method of Claim 31 wherein

as said plurality of measurement divided areas on said photosensitive object, at least a

part of remaining divided areas can be designated in addition to said plurality of specific

divided areas.

39. (New) The exposure method of Claim 31 wherein

said correction information is one of a correction map and a correction function.

40. (New) A device manufacturing method including a lithographic process wherein

in said lithographic process, an exposure processing of a specific process is continuously or intermittently performed to each of a plurality of photosensitive objects using the exposure method of Claim 1.

41. (New) An exposure method in which an exposure processing of a specific process is performed to each of a plurality of photosensitive objects, said method comprising:

a process in which estimate values of positional information used to align each of a plurality of divided areas on a photosensitive object with a predetermined point are calculated by a statistical computation, using actual measurement values of positional information of a plurality of specific divided areas selected from said plurality of divided areas on said photosensitive object;

a process in which

with respect to a plurality of measurement divided areas on said photosensitive object including at least said plurality of specific divided areas, a non-linear component of positional deviation amount from an individual fiducial position of each of said plurality of measurement divided areas obtained from each actual measurement value of positional information and each of said estimate values is evaluated at predetermined intervals, and

at least one of the number of new measurement divided areas to be added and an arrangement thereof is determined based on the evaluation results;

a process in which correction information related to a non-linear component of positional deviation amount from an individual fiducial position of each of said plurality of divided areas on said photosensitive object is updated, using said non-linear component of positional deviation amount of each of said plurality of divided areas on said photosensitive object, said non-linear component of positional deviation amount being calculated based on

actual measurement values of positional information of all measurement divided areas

including said new measurement divided areas and on said estimate values; and

a process in which exposure is performed controlling a position of said photosensitive

object based on the estimate value of positional information of each of said plurality of

divided areas and said correction information after update.

42. (New) The exposure method of Claim 41 wherein

the evaluation of said non-linear component of positional deviation amount of each of

said plurality of measurement divided areas is performed, taking into consideration at least

one of magnitude and a dispersion degree of said non-linear component of positional

deviation amount of each of said plurality of measurement divided areas in said correction

information before update.

43. (New) The exposure method of Claim 41 wherein

the evaluation of said non-linear component of positional deviation amount of each of

said plurality of measurement divided areas is performed, using a predetermined evaluation

function.

44. (New) The exposure method of Claim 41 wherein

said plurality of divided areas on said photosensitive object are grouped into a

plurality of blocks in advance, and

the evaluation of said non-linear component of positional deviation amount of each of

said plurality of measurement divided areas is performed with respect to each block.

45. (New) The exposure method of Claim 41 wherein

said intervals are one of intervals of a predetermined number of said photosensitive objects and intervals of a predetermined period of time.

46. (New) The exposure method of Claim 41 wherein

as said plurality of measurement divided areas on said photosensitive object, only said plurality of specific divided areas can be designated.

47. (New) The exposure method of Claim 41 wherein

as said plurality of measurement divided areas on said photosensitive object, at least a part of remaining divided areas can be designated in addition to said plurality of specific divided areas.

48. (New) The exposure method of Claim 41 wherein

said correction information is one of a correction map and a correction function.

49. (New) A device manufacturing method including a lithographic process wherein

in said lithographic process, an exposure processing of a specific process is continuously or intermittently performed to each of a plurality of photosensitive objects using the exposure method of Claim 41.

50. (New) An exposure apparatus that performs an exposure processing of a specific process to each of a plurality of photosensitive objects, said apparatus comprising:

a moving body that holds a photosensitive object;

a detection system that detects actual measurement values of positional information of any divided areas among a plurality of divided areas on said photosensitive object held on said moving body;

a computation unit that calculates estimate values of positional information used to align each of said plurality of divided areas with a predetermined point by a statistical computation, using actual measurement values of positional information of a plurality of specific divided areas among said plurality of divided areas on said photosensitive object detected by said detection system;

a judgment unit that

with respect to a plurality of measurement divided areas on said photosensitive object including at least said plurality of specific divided areas, calculates a non-linear component of positional deviation amount from an individual fiducial position of each of said plurality of measurement divided areas respectively at predetermined intervals, based on an actual measurement value of positional information of each of said plurality of measurement divided areas detected by said detection system and each of said estimate values of positional information calculated by said computation unit, and

judges the necessity of update of correction information based on magnitude of one of said non-linear component of positional deviation amount calculated of each of said plurality of measurement divided areas and a variation amount of the non-linear component, said correction information being used to correct a non-linear component of positional deviation amount from an individual fiducial position of each of said plurality of divided areas on said photosensitive object;

an updating unit that performs a processing to update said correction information when said judgment unit judges that update is necessary; and

a control unit that controls a position of said photosensitive object via said moving body based on the estimate value of positional information of each of said plurality of divided areas and said correction information that is latest, when exposing each of said plurality of divided areas.

51. (New) The exposure apparatus of Claim 50 wherein

said updating unit comprises:

a determining unit that determines at least a part of remaining divided areas excluding said plurality of measurement divided areas among said plurality of divided areas on said photosensitive object, as new measurement divided areas; and

a calculating unit that calculates a non-linear component of positional deviation amount from said individual fiducial position of each of said plurality of divided areas on said photosensitive object as new correction information, based on actual measurement values of positional information of all measurement divided areas including actual measurement values of positional information of the new measurement divided areas detected by said detection system and on said estimate values.

52. (New) The exposure apparatus of Claim 51 wherein

said determining unit determines said new measurement divide areas based on evaluation results of one of said non-linear component of positional deviation amount of each of said plurality of measurement divided areas calculated by said judgment unit and a variation amount of the non-linear component.

53. (New) The exposure apparatus of Claim 50 wherein

said intervals are one of intervals of a predetermined number of said photosensitive objects and intervals of a predetermined period of time.

54. (New) The exposure apparatus of Claim 50, wherein

a first mode in which only said plurality of specific divided areas are designated as said plurality of measurement divided areas on said photosensitive object, and a second mode in which said plurality of specific divided areas and at least a part of remaining divided areas are designated as said plurality of measurement divided areas on said photosensitive object are settable.

55. (New) The exposure apparatus of Claim 50 wherein

said correction information is one of a correction map and a correction function.

56. (New) An exposure apparatus that performs an exposure processing of a specific process to each of a plurality of photosensitive objects, said apparatus comprising:

a moving body that holds a photosensitive object;

a detection system that detects actual measurement values of positional information of any divided areas on said photosensitive object held on said moving body;

a computation unit that calculates estimate values of positional information used to align each of a plurality of divided areas with a predetermined point by a statistical computation, using actual measurement values of positional information of a plurality of specific divided areas among said plurality of divided areas on said photosensitive object detected by said detection system;

an evaluation unit that

with respect to a plurality of measurement divided areas on said photosensitive object including at least said plurality of specific divided areas, evaluates a non-linear component of positional deviation amount from an individual fiducial position of each of said plurality of measurement divided areas at predetermined intervals, based on an actual measurement value of positional information of each of said plurality of measurement divided areas detected by said detection system and each of said estimate values of positional information calculated by said computation unit, and

determines at least one of the number of new measurement divided areas to be added and an arrangement thereof, based on the evaluation results;

an updating unit that updates correction information related to a non-linear component of positional deviation amount from an individual fiducial position of each of said plurality of divided areas on said photosensitive object, using said non-linear component of positional deviation amount of each of said plurality of divided areas on said photosensitive object, said non-linear component of positional deviation amount being calculated based on actual measurement values of positional information of all measurement divided areas including actual measurement values of positional information of the new measurement divided areas detected by said detection system and on said estimate values; and

a control unit that controls a position of said photosensitive object via said moving body based on the estimate value of positional information of each of said plurality of divided areas calculated by said computation unit and said correction information that is latest, when exposing each of said plurality of divided areas.

57. (New) The exposure apparatus of Claim 56 wherein

said plurality of divided areas on said photosensitive object are grouped into a plurality of blocks in advance, and

said evaluation unit performs the evaluation of said non-linear component of

positional deviation amount of each of said plurality of measurement divided areas with

respect to each block.

58. (New) The exposure apparatus of Claim 57 wherein

said intervals are one of intervals of a predetermined number of said photosensitive

objects and intervals of a predetermined period of time.

59. (New) The exposure apparatus of Claim 57, wherein

a first mode in which only said plurality of specific divided areas are designated as

said plurality of measurement divided areas on said photosensitive object, and a second mode

in which said plurality of specific divided areas and at least a part of remaining divided areas

are designated as said plurality of measurement divided areas on said photosensitive object

are settable.

60. (New) The exposure apparatus of Claim 56 wherein

said correction information is one of a correction map and a correction function.

61. (New) A program that makes a computer for control of an exposure apparatus that

performs an exposure processing of a specific process to each of a plurality of photosensitive

objects execute a predetermined processing, said program making said computer execute:

a procedure in which estimate values of positional information used to align each of a

plurality of divided areas on a photosensitive object with a predetermined point are calculated

by a statistical computation, using actual measurement values of positional information of a

plurality of specific divided areas selected from said plurality of divided areas on said photosensitive object; and

a procedure in which

with respect to a plurality of measurement divided areas on said photosensitive object including at least said plurality of specific divided areas, a non-linear component of positional deviation amount from an individual fiducial position of each of said plurality of measurement divided areas is calculated respectively at predetermined intervals, based on an actual measurement value of positional information of each of said plurality of measurement divided areas and on each of said estimate values, and

judgment is made about the necessity of update of correction information based on magnitude of one of said non-linear component of positional deviation amount calculated of each of said plurality of measurement divided areas and a variation amount of the non-linear component, said correction information being used to correct a non-linear component of positional deviation amount from an individual fiducial position of each of said plurality of divided areas on said photosensitive object.

62. (New) A program that makes a computer for control of an exposure apparatus that performs an exposure processing of a specific process to each of a plurality of photosensitive objects execute a predetermined processing, said program making said computer execute:

a procedure in which estimate values of positional information used to align each of a plurality of divided areas on a photosensitive object with a predetermined point are calculated by a statistical computation, using actual measurement values of positional information of a plurality of specific divided areas selected from said plurality of divided areas on said photosensitive object; and

a procedure in which

with respect to a plurality of measurement divided areas on said photosensitive object

including at least said plurality of specific divided areas, a non-linear component of positional

deviation amount from an individual fiducial position of each of said plurality of

measurement divided areas obtained from each actual measurement value of positional

information and each of said estimate values is evaluated at predetermined intervals, and

at least one of the number of new measurement divided areas to be added and an

arrangement thereof is determined based on the evaluation results;

a procedure in which correction information related to a non-linear component of

positional deviation amount from an individual fiducial position of each of said plurality of

divided areas on said photosensitive object is updated, using said non-linear component of

positional deviation amount of each of said plurality of divided areas on said photosensitive

object, said non-linear component of positional deviation amount being calculated based on

actual measurement values of positional information of all measurement divided areas

including said new measurement divided areas and on said estimate values; and

a procedure in which exposure is performed controlling a position of said

photosensitive object based on the estimate value of positional information of each of said

plurality of divided areas and said correction information after update.